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This chapter presents findings concerning vaccination of children of 12-23 months, acute respiratory infection among children under age five and smoking status of ever-married women. Data were obtained for all live births that occurred in the five years preceding the survey.

11.1 Vaccination of Children

Universal immunization of children under one year of age against the six vaccine-preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles) is one of the most cost-effective programs in reducing infant and child morbidity and mortality. To be fully immunized, a child should receive the following vaccinations before the first birthday: one dose of BCG, three doses of DPT and polio, and one dose of measles vaccine. BCG, which is given at second month of life or at first clinical contact, protects against tuberculosis. DPT protects against diphtheria, pertussis, and tetanus. DPT and polio (OPV) each require three vaccinations at approximately six, ten and 14 weeks of age; however, since this regime is not always followed, emphasis is given on getting all three doses by the time the child reaches 12 months of age. Measles should be given at or soon after the child reaches nine months. It is recommended that children receive the complete schedule of vaccinations before 12 months of age. Children who receive protection against all six vaccine-preventable illnesses are considered fully vaccinated.

In TDHS-2003, information on vaccination status was collected for all children born in the five years preceding the survey. However, the data presented here are restricted to children who were alive at the time of the survey fieldwork.

To obtain vaccination data for each eligible child, mothers were asked whether they had a vaccination card for the child, and if so, to show the card to the interviewer. The dates of the vaccinations were copied from the card to the questionnaire. Mothers were also asked whether the child has been given any vaccination not recorded on the card. If the vaccination card was not available for the child, then the mother was asked a number of questions in order to determine the vaccination status of the child for each specific vaccine. In case of DPT and polio, the mother was asked to report the number of doses of the vaccine that the child had received.

11.1.1 Coverage of Children Age 12-23 Months

Information on vaccination coverage is presented in Table 11.1 according to the source of information used to determine coverage, i.e., the child's vaccination card or the

mother's report. Data are presented for children age 12-23 months, by which age the child should be fully vaccinated.

The information was gathered from a vaccination card in the case of 54 percent of children while mothers gave the information for the remaining cases. For children whose information was based on the mother's report, the proportion vaccinated during the first year of life (12 percent) is lower than that for children with a written record of vaccination (43 percent). The OPV coverage rate for children without a written record is somewhat higher than that of the DPT coverage rate.

Source of information	Percentage of children receiving:										Number of children
	BCG	DPT1	DPT2	DPT3	Polio1	Polio2	Polio3	Measles	All ¹	None	
Vaccinated at any time before the survey											
Vaccination card	51.5	51.9	50.7	48.5	52.2	50.8	48.4	48.9	42.5	0.0	402
Mother's report	36.2	36.6	25.1	15.9	42.5	32.0	20.7	30.5	11.7	2.8	346
Either source	87.7	88.5	75.8	64.4	94.7	82.8	69.1	79.4	54.2	2.8	749
Vaccinated by 12 months of age²											
	86.2	86.9	74.0	62.2	92.5	80.4	66.5	71.2	48.0	4.4	749

¹ Children who are fully vaccinated (i.e., those who have received BCG, measles, and three doses of DPT and polio).
² For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccination.

Taking into account both the card information and the mother's report, Table 11.1 shows that 54 percent of the children had received all of the recommended eight vaccines at some time before the survey. Only 3 percent had not received any vaccination at all. For the remaining 43 percent, the complete schedule of vaccinations was not received. The percentage of children who were fully vaccinated by 12 months of age was 48 percent.

11.1.2 Coverage Rates by Background Characteristics

Vaccination coverage rates for children in the 12-23 month age group are presented in Table 11.2 by background characteristics. There are definite differences in vaccination coverage by place of residence. The percentages of children receiving the first dose of OPV are equal (95 percent) for children living in urban and rural residences. However the percentages receiving the second and third doses of OPV fall to 78 and 53 for rural children compared with 85 and 77 percent of urban children. The three DPT doses are higher for children of urban residences than for children of rural residences. As a result of high drop-out rates, coverage in rural children for the third dose of DPT falls to 48 percent compared with 73 percent of urban children. BCG and measles coverage rates are also lower for rural children than for urban children. Overall, 63 percent of the urban children are fully vaccinated which is much higher than the proportion for rural children (37 percent).

Considering regional differences, the percentage fully vaccinated is lowest in the East (35 percent). In all other regions, at least six in ten children are fully vaccinated. The data in

Table 11.2 also verify the fact that drop-out rates for DPT and Polio are markedly high in the East compared to other regions. The proportion of children whose mothers showed a vaccination card also was significantly lower in the East (31 percent) than other regions.

Mother's educational status is related to the likelihood that a child will be vaccinated. The percentage of children who are fully vaccinated varies from 26 percent among children whose mothers have no education to 69 percent among children whose mothers have at least high school education. The DPT/OPV drop-out rates are higher for children of mothers with no education than for other children; for example, DPT coverage rates among children of women with no education fall from 63 percent in the case of the first dose to 35 percent for the third dose. Only 45 percent of children of women with no education received a measles vaccination, and only 64 percent received a BCG vaccination.

Background characteristic	Percentage of children receiving:										Percentage with vaccination card	Number of children	
	BCG	DPT			Polio			Measles	All ¹	None			
		1	2	3	1	2	3						
Child's sex													
Male	89.0	87.4	78.0	66.3	95.8	85.1	73.9	80.0	57.7	2.7	56.6	381	
Female	86.4	89.6	73.5	62.4	93.6	80.4	64.0	78.8	50.6	2.9	50.7	367	
Birth order													
1	92.3	92.0	83.5	72.9	96.0	87.5	78.1	84.4	62.4	1.0	65.1	253	
2-3	92.0	93.5	79.6	69.8	95.7	85.0	71.2	86.5	59.8	2.1	54.6	340	
4-5	83.8	78.4	59.1	41.0	93.8	71.9	57.0	68.5	33.8	3.2	30.7	93	
6+	52.2	61.8	48.7	35.0	85.6	67.5	38.8	36.5	21.5	13.0	37.6	63	
Residence													
Urban	92.6	91.2	80.9	72.6	94.7	85.3	76.9	84.4	62.9	2.4	63.2	503	
Rural	77.7	82.9	65.4	47.5	94.7	77.5	53.0	69.1	36.5	3.5	34.4	246	
Region													
West	95.5	94.3	81.3	72.6	95.2	87.4	79.1	88.9	63.0	1.4	65.1	271	
South	95.2	96.5	83.3	71.4	98.8	84.3	70.6	81.1	60.2	0.0	62.4	89	
Central	95.6	93.8	83.0	72.1	96.4	86.0	73.6	90.3	61.0	1.7	57.5	138	
North	(91.5)	(95.8)	(85.6)	(70.7)	(93.8)	(85.8)	(71.0)	(84.5)	(60.1)	(2.8)	(64.7)	41	
East	68.6	72.5	58.9	44.4	91.4	73.5	52.2	58.2	34.8	6.5	30.8	210	
Selected NUTS 1 Region													
Istanbul	92.3	92.3	77.5	72.5	89.7	83.6	78.2	85.8	62.3	3.0	70.4	127	
Southeast Anatolia	70.9	73.8	57.2	43.4	93.0	69.8	52.2	56.7	35.0	5.5	32.9	118	
Education													
No education/Prim. incomp.	63.8	62.9	48.9	35.0	88.2	70.6	44.6	45.0	26.1	9.5	31.6	173	
First level primary	93.7	94.7	79.1	69.3	97.0	85.4	73.9	88.9	60.9	1.1	55.4	389	
Second level primary	98.2	100.0	90.5	72.9	93.1	83.1	70.0	93.1	61.2	0.0	67.7	53	
High school and higher	97.2	98.9	95.3	84.8	97.2	90.7	86.5	90.8	68.5	0.0	72.1	133	
Total	87.7	88.5	75.8	64.4	94.7	82.8	69.1	79.4	54.2	2.8	53.7	749	

A child's birth order is also related to vaccination coverage rates. Children of high birth order tend to have lower coverage than children of lower birth order. The percentage fully vaccinated among first order births is 62 percent compared with 34 percent of children of birth order 4-5, and 22 percent for children of birth order six or more. There is a difference between vaccination coverage among male and female children in favor of males.

11.1.3 Vaccination in First Year of Life by Current Age

Table 11.3 presents information on children 12-59 months and shows the percentage of children who have a vaccination record as well as the percentage who have received each vaccine during the first year of life according to information from the vaccination card or mother's recall. As was the case in earlier tables, the distribution of vaccinations during the first year of life for children whose information was based on the mother's recall was assumed to be the same as that for children for whom a vaccination record was available.

Table 11.3 Vaccinations in first year of life by current age					
Among children 12-59 months, the percentage with a vaccination card and the percentage who have received each vaccine before their first birthday, according to current age of the child, Turkey 2003					
Vaccine	Current age of child in months				All children 12-59 months
	12-23	24-35	36-47	48-59	
Vaccination card seen by interviewer	53.7	30.9	23.2	17.4	30.7
Percentage vaccinated at 0-11 months¹					
BCG	86.2	84.3	81.6	83.8	84.7
DPT 1	86.9	83.9	83.0	81.7	84.5
DPT 2	74.0	66.7	64.2	61.9	67.0
DPT 3	62.2	52.9	52.2	51.6	55.3
Polio 1	92.5	91.5	88.7	90.6	91.5
Polio 2	80.4	76.3	75.0	73.7	76.8
Polio 3	66.5	60.1	59.9	60.9	62.6
Measles	71.2	70.2	66.8	72.9	71.0
All vaccinations ²	48.0	43.2	41.5	44.6	45.0
No vaccinations	4.4	7.1	9.7	7.6	6.6
Number of children	749	845	829	833	3,255

¹ Information was obtained either from a vaccination card or from the mother if there was no written record. For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as that for children with a written vaccination record.

² Children who have received BCG, measles, and three doses each of DPT and polio vaccines

The proportion of children for whom vaccination cards were seen declines with increasing age of child, from 54 percent among children age 12-23 months to 17 percent among children age 48-59 months. This suggests that either there has been an increase in vaccination levels in the recent past or the mothers did not keep the vaccination cards for older children. Similarly, the proportion of children who had received each vaccine during the

first year of life are higher for children age 12-23 months than for children in the 24-35 and 36-47-month age groups.

11.2 Prevalence and Treatment of Acute Respiratory Infection and Fever

Acute respiratory infection (ARI), primarily pneumonia, is a common cause of morbidity and mortality during infancy and childhood. ARI is still the most prevalent disease in Turkey among children under age five especially during winter months. Early diagnosis and prompt treatment with proper antibiotics can prevent a large proportion of these ARI deaths.

In the TDHS-2003, the prevalence of ARI was estimated by asking mothers whether their children below five years of age had been sick with a cough accompanied by short, rapid breathing in the two weeks preceding the survey. For children who had experienced these symptoms, questions were asked about the type of the treatment given and use of health facility or health provider. It should be noted that morbidity data are subjective since the information is based on mother's perception of her child's illness without any medical diagnosis. Furthermore, the timing of the TDHS-2003 fieldwork should be taken into consideration when assessing these findings, since the fieldwork took place in the peak season for ARI, mainly between December 2003 and May 2004. As the prevalence of ARI is subject to seasonality, the results do not represent the average annual prevalence of ARI.

Table 11.4 shows the percentage of children under five years of age with ARI symptoms and percentage of children under five years with a fever during the two weeks preceding the survey. Since no distinction was made in the questionnaire for treatment sought for symptoms of ARI and fever, the table shows a single column for the percentage of children with symptoms of ARI and/or fever for whom treatment was sought. This table also includes an additional background characteristic for the mother -her smoking status- since smoking is known to cause and/or aggravate symptoms of ARI. This variable has no known relationship to fever and as such is not applicable for fever. Overall 29 percent of children had experienced ARI at some time in the two weeks preceding the survey. Children under two years of age, especially those 6-11 and 12-23 months old, are more likely than older children to have had ARI.

There is little variation in ARI prevalence by sex and residence. The prevalence of ARI is higher among children in the North and East (33 percent) and children whose mothers did not attend school (35 percent) and whose mothers smoke (31 percent) than among other children.

Regarding fever, 40 percent of the children had fever during the two weeks preceding the survey. The prevalence of fever was highest among children in 6-11 months (55 percent), children living in the East (50 percent), and children whose mothers did not attend school (51 percent).

Table 11.4 Prevalence and treatment of symptoms of ARI and fever

Percentage of children under five years who had a cough accompanied by short, rapid breathing (symptoms of ARI), percentage who had fever in the two weeks preceding the survey, and percentage with symptoms of ARI and/or fever for whom treatment was sought from a health facility or provider, by background characteristics, Turkey 2003

Background characteristic	Percentage of children with symptoms of ARI	Percentage of children with fever	Number of children	Among children with symptoms of ARI and/or fever, percentage for whom treatment was sought from a health facility/provider ¹	Number of children
Age in months					
<6	26.3	32.6	372	47.0	160
6-11	36.8	55.2	371	48.8	234
12-23	32.2	47.9	749	45.5	421
24-35	30.4	40.8	845	39.0	410
36-47	29.7	36.6	829	38.1	381
48-59	20.7	32.5	833	32.3	323
Child's sex					
Male	29.7	40.1	2,062	43.8	1,001
Female	27.8	40.2	1,987	37.9	928
Residence					
Urban	28.3	38.6	2,651	47.8	1,253
Rural	29.7	43.1	1,347	28.3	676
Region					
West	29.1	33.6	1,305	49.3	581
South	25.4	36.7	542	36.7	253
Central	23.3	38.0	791	47.7	354
North	33.0	43.7	242	42.9	124
East	32.9	50.0	1,118	30.6	617
NUTS 1 Region					
Istanbul	36.5	39.6	625	46.3	323
West Marmara	19.2	32.0	119	(56.8)	48
Aegean	25.3	27.3	383	57.2	145
East Marmara	16.3	27.3	317	46.4	110
West Anatolia	20.0	36.5	346	44.7	149
Mediterranean	25.4	36.7	542	36.7	253
Central Anatolia	34.7	45.8	221	46.4	119
West Black Sea	25.5	44.1	193	52.0	97
East Black Sea	37.7	42.1	133	37.7	68
Northeast Anatolia	31.1	50.7	176	27.8	99
Central East Anatolia	28.4	46.5	300	31.6	153
Southeast Anatolia	35.5	51.4	642	30.9	365
Education					
No education/Primary incom.	34.7	50.9	1,044	25.1	599
First level primary	29.1	38.7	2,051	45.5	982
Second level primary	22.6	33.2	302	56.1	127
High school and higher	20.5	29.5	601	55.4	221
Mother's smoking status					
Smokes cigarettes	31.3	NA	1,004	48.1	483
Does not smoke	28.0	NA	2,998	38.6	1,443
Total	28.8	40.1	3,998	41.0	1,929

ARI = Acute Respiratory Infection; NA = Not applicable

¹Excludes pharmacy, shop, and traditional practitioner

Note: Parentheses indicate that a figure is based on 25-49 unweighted cases.

Four in every ten children with ARI and/or fever episodes received some kind of treatment from a health facility or a health provider. The proportion for whom treatment was sought are highest for children in the first year of life (around 48 percent), for male children (44 percent), for children living in urban areas (48 percent), for children in the West region (49 percent), and for children whose mothers completed second level primary (56 percent) or high school and higher (55 percent).

11.3 Smoking Status of Mothers

Cigarette smoking is hazardous to human health. Its use adversely affects women's health status and may affect children's health. During pregnancy its use increases the risk of having a small or low birth weight baby and may increase the susceptibility to acute respiratory illnesses among children. Table 11.5 ascertains the prevalence of smoking among women and frequency of cigarette smoking among women by background characteristics.

Among all ever-married women age 15-49, 28 percent reported that they smoke rarely or regularly. Looking at the age patterns, smoking is most common among women age 20-34. Urban women are more likely to smoke than rural women (33 percent and 15 percent, respectively). Women living in the West and those who have completed at least high school are more likely to smoke (32 and 44 percent respectively). According to maternity status, 15 percent of pregnant women and 20 percent of breastfeeding women report that they smoke regularly.

The majority of smokers age 35-49 smoke more than 10 cigarettes daily (52 percent). Smoking more than 10 cigarettes is most common among smokers living in the West (47 percent), and smokers with at least high school education (45 percent). Among pregnant women, 41 percent smoke 3-5 cigarettes, 14 percent smoke 6-9 cigarettes, and 15 percent smoke 10 or more cigarettes. Similarly among breastfeeding women, 29 percent smoke 3-5 cigarettes, 17 percent smoke 6-9 cigarettes, and 23 percent smoke 10 or more cigarettes daily.

A comparison of the TDHS-2003 results with the findings from the TDHS-1993 indicates that, in the last ten years, smoking has become more common among women. Overall, the proportion of ever-married women who smoke has risen by more than 50 percent, from 18 percent to the 28 percent.

Table 11.5 Use of smoking cigarettes

Percentage of ever-married women who smoke cigarettes rarely/regularly and percent distribution of cigarette smokers by number of cigarettes smoked per day, according to background characteristics, Turkey 2003

Background characteristic	Percentage who smoke cigarettes	Number of women	Number of cigarettes smoked per day						Don't know/missing	Total	Number of cigarette smokers
			0	1-2	3-5	6-9	10+				
Age											
15-19	16.5	238	(1.5)	(22.5)	(43.8)	(13.3)	(19.3)	(0.0)	100.0	39	
20-34	30.1	4,014	3.2	21.5	26.9	14.0	34.2	0.1	100.0	1,210	
35-49	25.7	3,824	2.1	17.4	18.0	10.6	51.8	0.1	100.0	984	
Residence											
Urban	32.8	5,752	2.1	17.8	22.0	13.1	44.8	0.1	100.0	1,885	
Rural	14.9	2,323	6.0	30.1	29.9	9.3	24.7	0.0	100.0	347	
Region											
West	32.3	3,286	1.7	17.1	22.0	12.5	46.7	0.0	100.0	1,063	
South	26.7	1,028	6.7	17.2	22.5	14.8	38.6	0.2	100.0	274	
Central	25.8	1,867	2.1	23.5	24.1	12.1	37.9	0.4	100.0	481	
North	21.5	590	3.8	28.6	25.7	9.6	32.4	0.0	100.0	127	
East	22.1	1,305	2.9	21.8	26.3	12.3	36.7	0.0	100.0	288	
NUTS 1 Region											
Istanbul	36.9	1,470	1.9	15.7	21.2	12.8	48.5	0.0	100.0	542	
West Marmara	30.5	348	1.8	14.6	30.1	11.2	42.3	0.0	100.0	106	
Aegean	25.7	1,157	1.8	21.6	18.1	12.9	45.6	0.0	100.0	297	
East Marmara	26.9	710	1.2	18.4	26.9	11.3	42.2	0.0	100.0	191	
West Anatolia	34.5	784	0.8	21.3	23.4	10.1	43.7	0.6	100.0	270	
Mediterranean	26.7	1,028	6.7	17.2	22.5	14.8	38.6	0.2	100.0	274	
Central Anatolia	20.5	471	2.5	27.7	24.0	16.5	29.3	0.0	100.0	97	
West Black Sea	20.1	513	5.7	26.5	22.9	12.1	32.8	0.0	100.0	103	
East Black Sea	21.8	291	5.0	30.1	31.4	8.8	24.8	0.0	100.0	63	
Northeast Anatolia	21.9	245	6.6	19.8	34.2	7.2	32.2	0.0	100.0	54	
Central East Anatolia	21.8	389	1.0	28.4	29.3	14.4	26.9	0.0	100.0	85	
Southeast Anatolia	22.3	671	2.7	18.8	21.7	13.0	43.8	0.0	100.0	150	
Education											
No education/Primary incom.	18.4	1,761	2.1	25.4	22.9	8.0	41.7	0.0	100.0	324	
First level primary	24.5	4,339	3.1	22.0	22.9	12.8	39.2	0.0	100.0	1,065	
Second level primary	40.1	601	2.4	9.8	27.1	16.5	43.5	0.7	100.0	241	
High school and higher	43.9	1,374	2.5	16.7	22.6	12.8	45.4	0.1	100.0	603	
Maternity status											
Pregnant	15.0	472	3.7	26.6	41.1	13.9	14.6	0.0	100.0	71	
Breastfeeding	19.6	929	4.5	26.1	29.4	17.3	22.7	0.0	100.0	182	
Not pregnant/breastfeeding	29.7	6,674	2.5	18.9	22.1	12.0	44.4	0.1	100.0	1,980	
Total	27.6	8,075	2.7	19.7	23.3	12.5	41.7	0.1	100.0	2,233	